

WHAT IS CLAIMED IS:

1. A hybrid gas inflator comprising:

5 a high-pressure gas container containing a first gas therein, said high-pressure gas container comprising an opening that is normally sealed by a pressure-resisting disc and an extension ring portion being formed around said opening; said extension ring portion having at least one exhaust outlet toward a radial direction;

10 a connecting ring being received within said extension ring portion, said connecting ring having a partition plate at a middle level therein which separating said connecting ring into an upper ring and a lower ring; said lower ring having at least one gas outlet opened radially; said partition plate having a first central hole extending along an axial direction;

15 a piston including an axle that passing through said first central hole and sliding along said axial direction, a pressure-receiving portion that is formed on a top end of said axle, a bottom end of said axle extending to against said pressure-resisting disc that covers said opening of said high-pressure gas retainer, and an axial hole extending axially from said top end to said bottom end inside said axle; and

20 a combustion chamber fixed within said extension ring portion, said combustion chamber containing a predetermined amount of second gas generant therein, and a gas exit being formed on a wall of said combustion chamber and facing to said pressure-receiving portion of said piston; wherein, a second gas being generated by means of burning said second gas generant and  
25 then escaping from said gas exit so as to press said pressure-receiving portion

and to drive said piston to move axially along said axial direction; said axially moving axle, together with an axially flow of hot jet of said second gas passing through said axial hole therein, breaking said pressure-resisting disc; said second gas entering into said high-pressure gas container to mix with and heat up said first gas in said high-pressure gas container; said first gas and said second gas forming a hybrid gas flowing out of said high-pressure gas container through said gas outlet of said connecting ring and said exhaust outlet of said extension ring portion.

2. The hybrid gas inflator of claim 1, wherein said combustion chamber is composed of an upper shell and a lower shell.

3. The hybrid gas inflator of claim 2, wherein said upper shell and said lower shell are screwed together.

4. The hybrid gas inflator of claim 1, wherein said combustion chamber contains a combustion-enhancement space for storing a predetermined amount of combustion-enhancement and an igniter; said igniter being utilized for igniting said combustion-enhancement so as to generate a enhanced gas.

5. The hybrid gas inflator of claim 4, wherein said combustion-enhancement space has at least one gas outlet through which said combustion-supporting gas is ejected to burn said second gas generant.

6. The hybrid gas inflator of claim 1, wherein said combustion chamber has a seal foil sealing said gas exit to prevent said gas generant therein from moisture.

7. The hybrid gas inflator of claim 6, wherein said seal foil is an aluminum foil.

8. The hybrid gas inflator of claim 1, wherein said extension ring portion

contains a tray for separating said piston and said combustion chamber; said tray having a second central hole facing said gas exit of said combustion chamber; said second central hole having a caliber greater than that of said axial hole of said piston.

5        9. The hybrid gas inflator of claim 1, wherein said high-pressure gas container is a high-pressure steel gas cylinder.

10. The hybrid gas inflator of claim 1, wherein said pressure-resisting disc is made of stainless steel.

10        11. The hybrid gas inflator of claim 1, wherein said extension ring portion contains a filter mesh covering said exhaust outlet for filtering out impurities in an ejected gas and for reducing the speed of said ejected gas to achieve noise reduction.

15        12. The hybrid gas inflator of claim 1, wherein said combustion chamber is locked in said extension ring portion by screwing a top cover onto said extension ring portion.